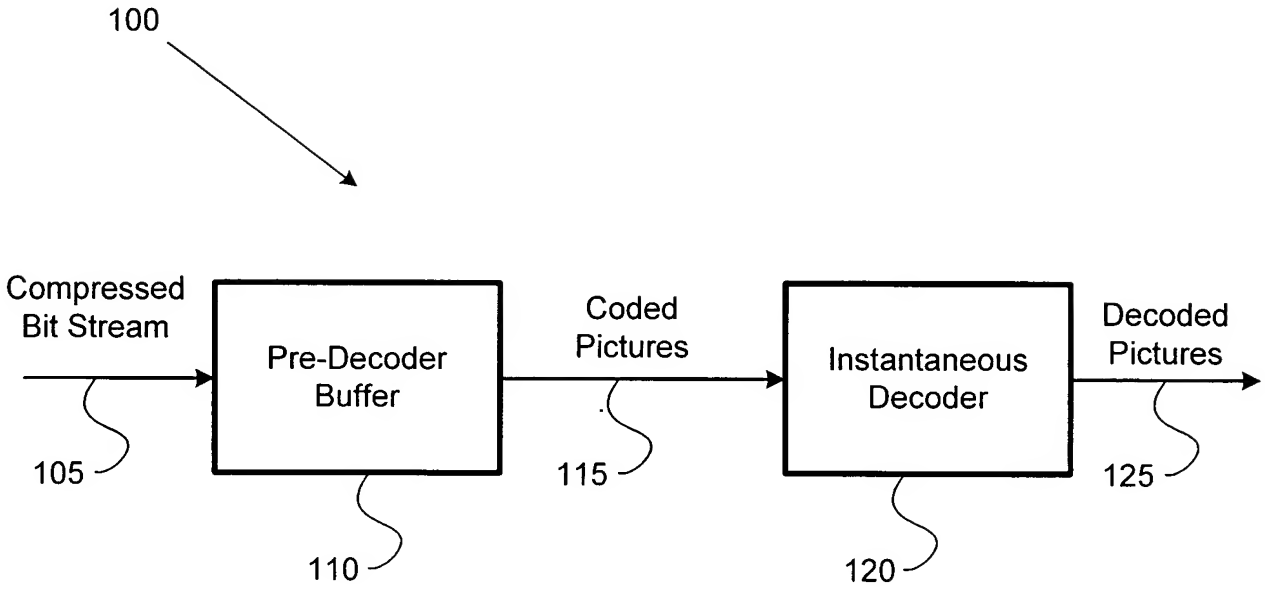

100
Compressed
Bit Stream
Pre-Decoder
Buffer
Coded
Pictures
Instantaneous
Decoder
Decoded
Pictures
105
110
115
120
125

FIG. 1

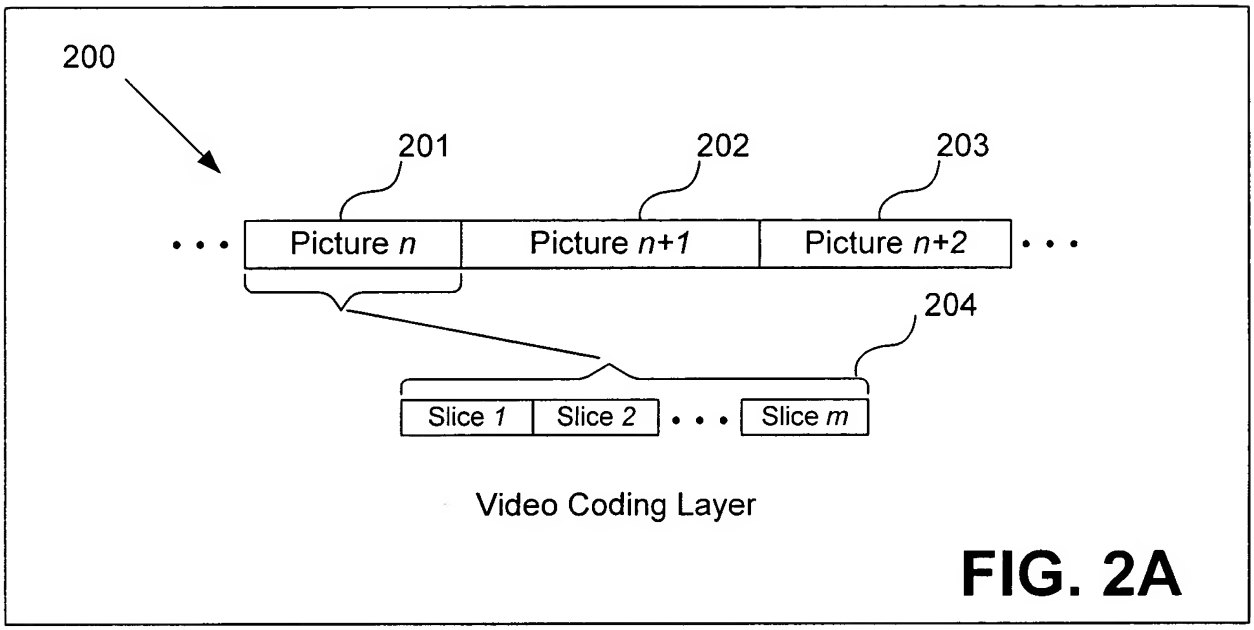

200
201
202
203
Picture n
Picture n+1
Picture n+2
204
Slice 1
Slice 2
Slice m
Video Coding Layer

FIG. 2A

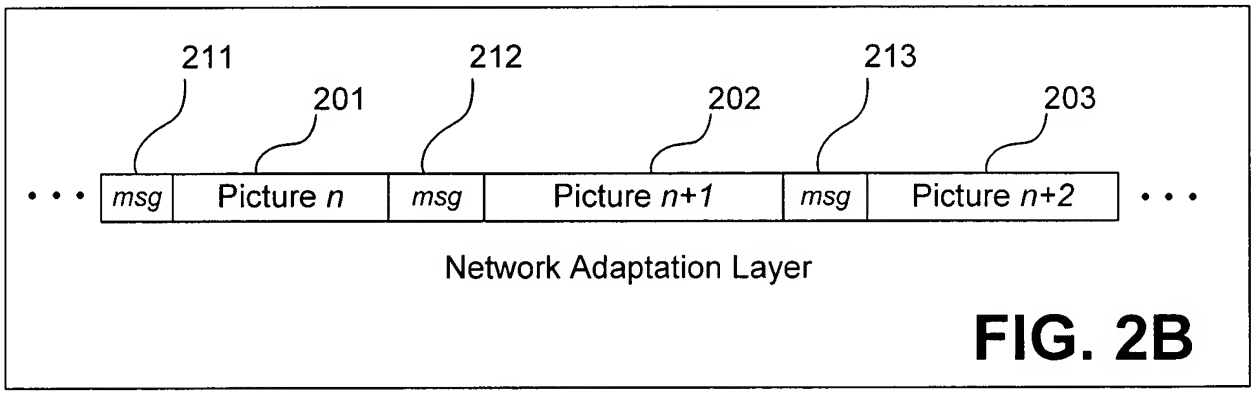

211
212
213
201
202
203
msg
Picture n
msg
Picture n+1
msg
Picture n+2
Network Adaptation Layer

FIG. 2B

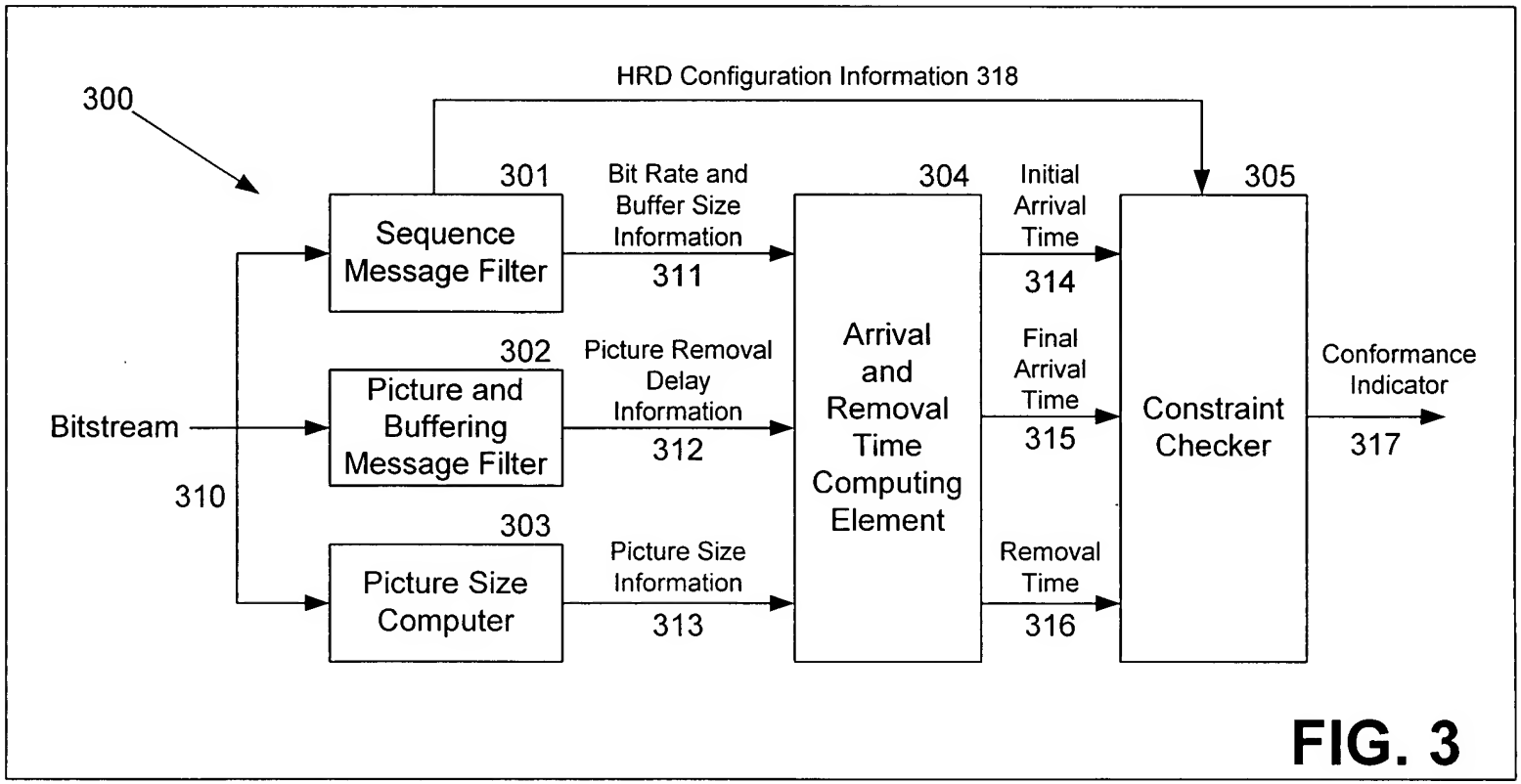

300
HRD Configuration Information 318
301
Sequence Message Filter
Bit Rate and Buffer Size Information
311
304
Arrival and Removal Time Computing Element
Initial Arrival Time
314
305
Constraint Checker
Conformance Indicator
317
Bitstream
310
302
Picture and Buffering Message Filter
Picture Removal Delay Information
312
Final Arrival Time
315
303
Picture Size Computer
Picture Size Information
313
Removal Time
316

FIG. 3

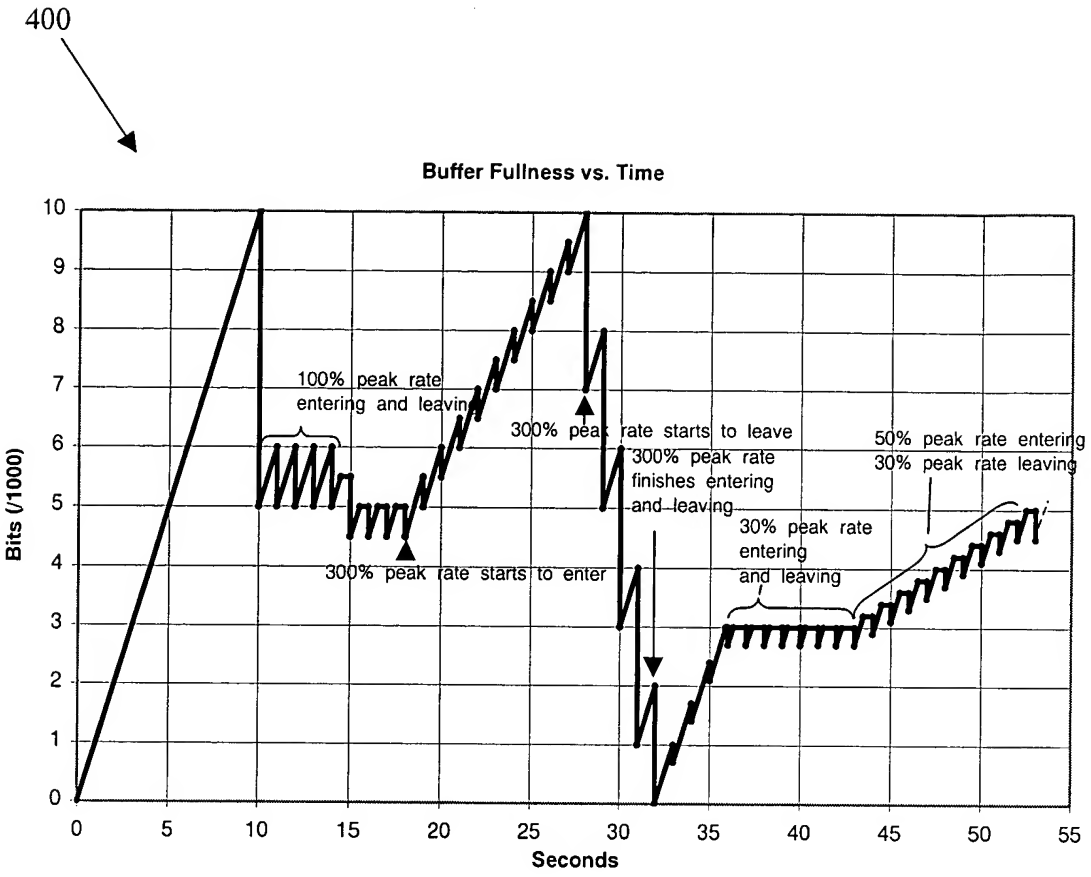
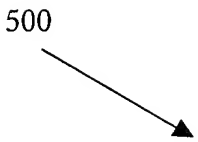

400
Buffer Fullness vs. Time
Bits (/1000)
Seconds
0
1
2
3
4
5
6
7
8
9
10
0
5
10
15
20
25
30
35
40
45
50
55
100% peak rate entering and leaving
300% peak rate starts to enter
300% peak rate starts to leave
300% peak rate finishes entering and leaving
30% peak rate entering and leaving
50% peak rate entering
30% peak rate leaving

FIG. 4



Attribute	Value	Units
time_scale	1	units per second
num_units_in_tick	1	units per tick
R	1000	bits per second
B	10	bits
T	10	seconds

FIG. 5A

550

FIG. 5B

551	552	553	554	555	556	557	558
b	t_e	t_{ai}	t_{af}	t_{ai}-t_e	t_r	t_r - t_{ai}	t_r - t_e
5,000	0	0	5	0	10	10	10
1,000	1	5	6	4	11	6	10
1,000	2	6	7	4	12	6	10
1,000	3	7	8	4	13	6	10
1,000	4	8	9	4	14	6	10
1,000	5	9	10	4	15	6	10
500	6	10	10.5	4	16	6	10
500	7	10.5	11	3.5	17	6.5	10
500	8	11	11.5	3	18	7	10
500	9	11.5	12	2.5	19	7.5	10
500	10	12	12.5	2	20	8	10
500	11	12.5	13	1.5	21	8.5	10
500	12	13	13.5	1	22	9	10
500	13	13.5	14	0.5	23	9.5	10
500	14	14	14.5	0	24	10	10
500	15	15	15.5	0	25	10	10
500	16	16	16.5	0	26	10	10
500	17	17	17.5	0	27	10	10
3,000	18	18	21	0	28	10	10
3,000	19	21	24	2	29	8	10
3,000	20	24	27	4	30	6	10
3,000	21	27	30	6	31	4	10
2,000	22	30	32	8	32	2	10
300	23	32	32.3	9	33	1	10
300	24	32.3	32.6	8.3	34	1.7	10
300	25	32.6	32.9	7.6	35	2.4	10
300	26	32.9	33.2	6.9	36	3.1	10
300	27	33.2	33.5	6.2	37	3.8	10

300	28	33.5	33.8	5.5	38	4.5	10
300	29	33.8	34.1	4.8	39	5.2	10
300	30	34.1	34.4	4.1	40	5.9	10
300	31	34.4	34.7	3.4	41	6.6	10
300	32	34.7	35	2.7	42	7.3	10
300	33	35	35.3	2	43	8	10
300	34	35.3	35.6	1.3	44	8.7	10
300	35	35.6	35.9	0.6	45	9.4	10
300	36	36	36.3	0	46	10	10
300	37	37	37.3	0	47	10	10
300	38	38	38.3	0	48	10	10
300	39	39	39.3	0	49	10	10
300	40	40	40.3	0	50	10	10
300	41	41	41.3	0	51	10	10
300	42	42	42.3	0	52	10	10
500	43	43	43.5	0	53	10	10
500	44	44	44.5	0	54	10	10
500	45	45	45.5	0	55	10	10
500	46	46	46.5	0	56	10	10
500	47	47	47.5	0	57	10	10
500	48	48	48.5	0	58	10	10
500	49	49	49.5	0	59	10	10
500	50	50	50.5	0	60	10	10
500	51	51	51.5	0	61	10	10
500	52	52	52.5	0	62	10	10

FIG. 5B (continued)